E-learning

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Abstract. In this paper e- learning in the Republic of Macedonia will be explained, with special accent put on the opportunities that could be offered. Also, it explains advantages of e-learning, and its implementation in the infrastructure of the universities in Republic of Macedonia, based on experience taken from world class universities. The paper uses information and data collected from users that are using this type of learning. Objectives of e-learning will be presented, also with questions „What is e-learning and what are its benefits?“. Furthermore, reasons why e-learning is so effective and what benefits users have are also included. Based on these presented facts, we can conclude that e-learning is much more effective from everyday traveling to our universities, because you can save your time and your financial resources, man gets more desire for maximum exploitation on information and data that is accessable 24 hours in a day.

1.Introduction

With the development of Internet technologies and the global network and their continuous advancement, new ways of learning are being developed simultaneously. With the very process of modernizing the education system, e-learning is becoming popular as well, which is a new way of teaching and learning [1].

Electronic learning dates back a long time, and developed in parallel with the development of technology. Namely, the term "e-learning" was first used at a seminar on CBT systems in 1999, while at the beginning of the 21st century businesses adopted this type of learning as a central way of training and training workers [2].

Some authors define that e-learning involves distance learning methods supported by the Internet. In this way, the user has almost at any time virtual contact with his mentor, or other user, as well as constant access to the teaching activities run by the professor in the electronic classroom [3].

In contrast, Pein and Heron define distance education as a planned learning that takes place in a different place from the lecture and requires special techniques of curriculum planning, special teaching methods and special ways of communicating through electronic devices, Internet and multimedia [4].

Additionally, e-learning is also defined as a kind of self-contained use of the produced teaching materials outside the classroom, ie from another location [5].

According to the e-learning team at FON-Skopje, e-learning is a virtual electronic learning tool, which in some part supersedes and supports standard learning [6].

Electronic learning is synonymous with: multimedia learning, advanced teaching technologies-TEL, computer-based learning - CBI, computer based training and the like. A broad term covers a wide range of methods, techniques and tools for learning with the support of information and communication technologies.

This includes email, discussion forums, collaborative software, open access platforms for courses, webinars and books; therefore, for e-learning, several different terms are used, such as: Online Learning, Distance Learning, Computer Learning, Online learning[7].

One of the many advantages of E-Learning is that effective instructional methods can be provided, such as: exercise with feedback on the exercises, activities of combined collaboration (with other students and students, lecturers and professors), individualized learning paths which are based on the needs of students, as well as using simulations.

Most often, e-learning courses are prepared in order to build cognitive skills. On the other hand, the disadvantage is that e-learning is more expensive than the preparation of teaching materials, the training of lecturers and professors, especially if multimedia methods or extremely interactive methods are used.

However, the costs of e-learning, including server and technical support costs, are significantly lower than they are necessary for the classroom facilities, the time of the lecturer, student travel costs, and time.On a large scale, today's educational system is still oriented towards the traditional approach, where the student must be physically present at the lectures and notice information from the new teaching unit.

On the basis of all the above, it can be established that electronic education is a complex system that includes various elements of learning and teaching by applying different technologies., includes printed and audio-visual teaching materials and can be an individual or group approach to learning.

E-learning is one of the methods for implementing e-education and focuses on the student's central role in the learning process. The student is more motivated because the course content can be chosen according to his needs, at a time when it suits him with flexible hours, which increases productivity.

Within the Macedonian education, computerization and digitization of education are intensively promoted after 2002, when a Chinese donation was received in 2005 for the first time. Subsequently, the implementation of the National Program for the Development of Education 2005-2015 started. Draft Program for the Development of ICT in Education (2005-2015), National Policy for Information Society and the National Strategy for the Development of the Information Society[8].

The aim of the projects is to provide software tools for teaching subjects, interactive on-line instruction, interactive teaching methods and a test system. In higher education back in 2007, "Goce Delcev" University in Shtip started using the Moodle eLearning platform as the basis for the e-Learning Center.

The aim of this paper is to give an overview of e-learning with the advantages it offers and an overview of its representation in the Republic of North Macedonia in the educational system.

2. Classification of e-learning

Falch (2004) suggests four types of e-learning classification divided into six groups[9]:

2.1. E-learning with physical presence and without e-communication

It refers to the traditional lecture where both the student and the teacher are physically present, but is classified as e-learning due to the use of e-learning tools in order to transfer the new teaching unit.

2.2. E-learning without presence, without e-communication

It is self-study, when students receive the material, which is usually pre-recorded, or is access to archived footage, through an e-learning platform.

There is neither a physical nor a virtual presence, nor communication or e-communication between the professor and the student.

2.3. E-learning without presence and with e-communication (Asynchronous)

Asynchronous e-learning represents the student-teacher relationship that is physically and temporally distant.

The interaction between them is enabled with the help of streaming media, email, discussion panels, social networks. It also provides working relationships between the learner and the tutor (an instructor who teaches individual students on a subject) even when participants cannot be online at the same time. It is a key component of flexible e-learning.

2.4. E-learning with virtual presence and with e-communication (synchronous)

Synchronous e-learning supports student-teacher interaction in real time and reminds of face-to-face educational environment. Synchronous communication takes place online and is supported by media such as audio / video conferencing, instant messaging, real-time collaboration applications, chatting, and so on.

This learning allows students and teachers to get more socialization by allowing questions and answering in real time. It features a dynamic student-teacher interaction and a quick response supported by traditional pedagogies.

2.5. E-learning with occasional presence and with e-communication (mixed / hybrid asynchronous learning)

The teaching of the new teaching unit is accomplished by occasional physical meetings between the lecturer and the student, and through e-learning technologies in the rest of the time. This type of e-communication learning is widely used, as in asynchronous e-learning. Therefore, this type of learning is a combination of traditional learning and asynchronous e-learning.

2.6. E-learning with attendance and e-communication (mixed / hybrid synchronous learning)

This type of learning is a hybrid e-learning approach with the presence all the time, independently physical, or virtual. Some sessions are conducted according to the traditional way, while the remaining sessions are realized through a virtual presence or synchronous learning.

Table 1 provides a tabular overview of the types of e-learning classifications.

Table 1. Classification of e-learning

Classification	Presence	e-Communication	Term
Type I	Yes	No	Traditional approach
Type II	No	No	Self-study
Type III	No	Yes	Asynchronous
Type IV	Yes	Yes	Synchronously
Type V	From time to time	Yes	Mixed / hybrid asynchronous approach
Type VI	Yes	Yes	Mixed / hybrid synchronous approach

In the classification, the term "presence" refers to if the lecturer and the student are simultaneously present, physically or virtually, during the lecture.

The term "e-communication" refers to if there is e-communication between the lecturer and the student during the lecture, or if e-communication is the primary medium for communication to complete the course.

3. Benefits of using e-learning

In many cases, e-learning is used as a combined strategy, that is, a combination of e-learning and conventional learning methods. E-learning is based on concepts such as: independent learning, active learning, self-centered learning, problem-based learning, simulations, and learning based on a work assignment. In all of these models, the student becomes responsible for his own progress in the learning and education process, which has reduced the need for face-to-face consultation meetings. Consultations can take place electronically (discussion forums, email, video conferencing, etc.).

The traditional way for the most part involves the methods in which the professor plays the role, while e-learning is a student-centered approach. This way of learning other than requiring a physical presence at the same time both the professor and the student, also the content ofthe unit is temporarily limited due to the predetermined time of the lesson.

On the other hand, with e-learning, students can communicate with their lecturers at any time, every day of the week or via e-mail or other forms of on-line discussion with flexible learning

duration. With this type of flexibility, students are involved in a learning process that is suited to their needs, according to independent and individualized learning methods. The e-learning process provides skills analysis because professors are able to analyze the skills and competencies that students possess, as well as developing new skills.With the need for e-learning material to be virtually accessible at any time, a process of creating materials is in place to master the thematic units, as well as appropriate questions for exercises, repetition and determining the acquired knowledge[10].
Pupils and students can work with exercises through which they can be self-assessed, and be evaluated using questions made according to the set goal. The teacher assesses each student through the results of exercises and tests. In this way students become independent and more motivated. In all these models, it is crucial to generate student motivation[11].

A distinction can be made between "external" motivation that relates to the pursuit of activities in order to achieve a certain result and "internal" motivation that relates to the pursuit of activities that result in satisfying the interests and satisfaction of the holder of the activity. In e-learning, the so-called internal motivation with its related characteristics is of particular importance, such as curiosity, profound learning aimed at understanding, research, and the like. In order to understand the link between e-learning and the motivation process, it is necessary to understand the creation of learning materials in order to increase motivation.

Through e-learning, students are enabled to develop their own concept, to make basic decisions and to develop skills, while students have the opportunity to get a higher level of education in order to adopt new, socially based knowledge.

Another advantage that makes e-learning of extraordinary importance is to save money associated with travel, providing a room, providing materials, additional time engagement of the teaching staff, or providing trainers, consultants, and mentors. For example, when investing in e-learning software in Macedonian, it is a one-time investment. The cost of the time and means of providing e-learning materials is one-off. In this context, time and energy will be put into the function of improving the materials.

During e-trainings, internal trainers work on the program part for learning. During any e-training, no additional costs arise, such as when training is repeated when there is a cost of renting a room, refreshment, lunch, overnight, etc. E-learning helps to cushion the problems that arise in this complex process[12].

The complexity of the organization of the teaching and / or training stems from the need for the most appropriate way to engage all the resources (to match the timing, space capacities, etc.).

4. Representation of E-learning in education in North Macedonia

In the course of 2010, the Ministry of Information Society launched the project for free electronic textbooks and the web site "e-ucebnici.mk". It publishes textbooks in Macedonian, Albanian and Turkish, which can be freely viewed and searched through their contents. A complementary project of this is the "skoool.mk" website prepared by the MIS and the Bureau for the Development of Education, and part of the "skool.com" network.

The site provides tools and contents in the field of mathematics, physics, chemistry and biology. New media, the so-called "Web 2.0" open wide space for the creative use of digital tools and free services and resources. In this context, the increased use of these funds for innovation and creative approach in the Macedonian education is noticeable. As an illustration, several mini-projects of this type, derived as independent individual or group endeavors, the following registered cases can be listed:

"E-school"

The platform is an on-line collection of educational courses in several areas: Informatics, Physics, Chemistry, Electrical Engineering, Digital Systems, HTML, etc. The collection is based on the concepts of "Moodle". "Moodle" is a Course Management System (CMS), also known as "Learning Management System - LMS", or "Virtual Learning Environment - VLE". It is a free web application that users can use free, and are free to create educational content on education websites.

"ToolBox"
It is a website that, according to its authors, is a "collection of materials for 21st century teaching". On this page there is an electronic archive of professional text and video materials from the fields of mathematics, chemistry, physics, biology, geography, and technical education[13].

„Teachhoot“
Teachhoot is the first educational internet platform in North Macedonia that has professors, tutors from different subjects. It has been officially launched since September 15, 2017. It is a platform for online classes in a virtual classroom. With the help of TeachHoot, the entire process of searching, scheduling, retrieving, and maintaining private tuition classes takes place on-line without the need for physical presence on any of the parties. The idea for Teachhoot comes from the advances in educational processes in the United States as a leader in online tutoring[14].

Another example of an institution that uses the concept of e-learning is the e-Learning Center at the Goce Delcev University in Stip, which since 2007 has been using the Moodle eLearning platform[15].

The private university FON also has an e-learning system that is closed for wider use, i.e. it is limited only to employees and students of the higher education institution, who provide their university email address so that they can use it.
In December 2010, the Workers' University "Pere Toshev" from Prilep started with the realization of online lifelong learning courses electronically following a pilot project of DVV International, available at http://elektronskoucenje.mk. The courses are in the field of IT, foreign languages, medicine and accounting.

In September 2010, the modules of customs and e-business studies (E-learning) at the Customs Administration were officially promoted, aimed at contributing to better and more efficient application of customs laws, as well as harmonization and simplification of customs procedures[16].
Another example of a higher educated institution with an e-learning system is the International Slavic University, which is also limited to the use of employees, and students who provide their index number and / or university address[17].

In terms of e-learning accessible to secondary schools, the Fifth Private Gymnasium also offers an e-learning system for students and teachers that has been operating since 2009. The system, among other things, is used by teachers to place materials and schedules for their students. This system is closed to the general public.

The Algorithm Center (Private High School) has implemented an electronic assessment and testing project. The aim of this project is to enable teachers in primary and secondary schools to use information technology in support of school work that will contribute to the improvement of the whole process of teaching, electronic assessment and testing, on-line learning through the Internet network, etc. In this system, students from primary and secondary education, teachers who are given a username and password, and guests who can test questions. The system after the given answers indicates which answer is correct and wrong, so it is a system of learning, but the educational materials are only available offline.

Conclusion

From all of this, we can conclude that nowadays with e-learning, things are much easier with regard to learning and access to information.The division of 6 e-learning classifications allows everyone to easily adapt to the way it is easiest to overcome the matter, and therefore there is no barrier between the recipient and the source of information. However, each classification needs to be well studied so that the recipient can know where to look for the information he or she needs.With this type of flexibility, students are involved in a learning process that is suited to their needs and they have an easy approach to materials they need to learn every time they want.

Learning has many benefits, and the best ranked benefit is that it encourages the student to engage himself in finding information and enriching his knowledge. That is, it overshadows the role of the professor as the main actor in the lectures, so that the role of the student is now.

Regarding e-learning in the Republic of North Macedonia, with the introduction of electronic textbooks, access to student and citizen information in the Republic of North Macedonia is significantly facilitated. In addition, saving money and time due to the economic situation of the state is of great benefit.

Because of the above facts, e-learning is a great plus in education and should be introduced in all schools and faculties for easier and effective distance learning.It is also an incentive, because students are not limited in time and space, but they can expand their knowledge to the extent they like it.

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